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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,435	09/08/2003	Jung-Lin Pan	1-2-0394.1US	1446
24374	7590	05/02/2007		
VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			EXAMINER PATHAK, SUDHANSHU C	
			ART UNIT	PAPER NUMBER
			2611	
			MAIL DATE	DELIVERY MODE
			05/02/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	Application No. 10/657,435	Applicant(s) PAN ET AL.	
	Examiner Sudhanshu C. Pathak	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Sept. 8<sup>th</sup>, 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-23 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-17 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Sept. 8<sup>th</sup>, 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-to-23 are pending in the application.

#### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) filed on March 27<sup>th</sup>, 2006 contains the same references as the IDS dates Aug. 30<sup>th</sup>, 2004 therefore it has been placed in the application file, but the information referred to therein has not been considered as to the merits.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In regards to Claim 2, the claim discloses, "a time interval between two successive samples in each extended received vector is the chip duration", this is further supported in the specification on Page 11, Paragraph 28 wherein the specification discloses oversampling assuming the sampling rate is "M" times of chip rate. Therefore, the time interval between two successive samples is (1/M) chip

rate. Therefore, it is not clear as how if the received vector is over sampled, how the time interval between two successive samples is the chip duration.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1, 3 & 5-17 are rejected under 35 U.S.C. 102(a) as being anticipated by Zeira et al. (WO 02/39610).

In regards to Claim 1, Zeira discloses a method for recovering data from a plurality of signals received in a shared spectrum, the plurality of signals experiencing a similar channel response (Specification, Page 2, Paragraph 9, lines 1-4, 8-9 & Fig. 2) {Interpretation: The reference discloses recovering data in a receiver from a plurality of received signals over a shared spectrum all experiencing a similar channel response}, the method comprising: sampling a composite signal including the plurality of received signals, producing a received vector (Specification, Page 2, Paragraph 9, line 4 & Fig. 2, element 43 & Specification, Page 5, Paragraph 28, Eq. 1 & Paragraph 29, lines 1-2) {Interpretation: The reference discloses sampling the received signals resulting in the received vectors  $r_1, \dots, r_N$ }; estimating a channel response of the composite signal (Specification, Page 2, Paragraph 9, lines 4-5 & Fig. 2, element 43 & Specification, Page 4, Paragraph 25, lines 9-10 & Specification, Page 5, Paragraph 28, Eq. 1) {Interpretation: The reference discloses

estimating the channel response, the matrix "H"); extending the received vector (Specification, Page 7, Paragraph 32, lines 2-4 & Specification, Page 24, Paragraph 65, lines 1-7 & Eq.'s 49a-b) {Interpretation: The reference discloses modifying the "d" & "H" matrices thus extending the received vector, by zero padding, according to the equations 49a-b}; extending the channel response (Specification, Page 24, Paragraph 65, lines 4-6); channel equalizing the received vector using the extended channel response, producing a spread vector (Specification, Page 1, Paragraph 7, lines 5-7 & Specification, Page 21, Eq.'s 38-39); and despreading the spread vector to produce data of the plurality of signals (Specification, Page 10, Paragraph 32, lines 1-3 & Specification, Page 26, Paragraph 66, line 5).

In regards to Claim 3, Zeira discloses a method for recovering data from a plurality of signals received in a shared spectrum, the plurality of signals experiencing a similar channel response as described above. Zeira further discloses a time interval between two successive samples in each extended receive vector is a fraction of the chip duration (Specification, Page 5, Paragraph 29, lines 1-4 & Paragraph 30, line 1 & Eq.'s 2-3) {Interpretation: The reference discloses oversampling the received vector thus the time duration between samples is a fraction of the chip duration}.

In regards to Claims 5, 7, 9, 11, 14 & 16, Zeira discloses a base station including a communications receiver (Fig. 1, elements 12; & Paragraph 5 & Fig. 2, element 28 & Paragraph 21) {Interpretation: The reference discloses a base station (BS) and a user equipment (UE) wherein it is inherent that each BS and UE comprise a wireless

transmit/receive unit (WTRU), the receiver comprising: an antenna for receiving radio frequency (RF) signals (Fig. 2, element 40); a sampling device coupled to the antenna for producing a chip rate received vector wherein sampling the received vector at a multiple "M" of the chip rate (Fig. 2, element 43 & Page's 5-6, Eq.'s 2-3); a channel estimation device coupled to the sampling device for determining a channel impulse response for the received vector (Fig. 2, element 44 & Paragraph 25, lines 7-10); and a single user detector (SUD) coupled to the sampling device and the channel estimation device for estimating a data vector using an extended algorithm which extends the received vector and the channel impulse response (Fig. 2, element 46 & Paragraph 26, lines 1-4 & Specification, Page 7, Paragraph 32, lines 2-4 & Specification, Page 24, Paragraph 65, lines 1-7 & Eq.'s 49a-b & Specification, Page 24, Paragraph 65, lines 4-6).

In regards to Claims 6, 8, 10, 12-13, 15 & 17, Zeira discloses a base station including a communications receiver as described above. Zeira further discloses the SUD comprising a channel equalizer for using the channel impulse response to determine a spread vector (Specification, Page 1, Paragraph 7, lines 5-7 & Specification, Page 21, Eq.'s 38-39) {Interpretation: The linear block equalization and zero forcing equalization are interpreted as minimum mean squared error (MMSE)}; and a despreader coupled to the channel equalizer for despreading the spread vector to estimate the data vector (Specification, Page 10, Paragraph 32, lines 1-3 & Specification, Page 26, Paragraph 66, line 5).

***Allowable Subject Matter***

7. Claims 18-23 are allowed over the prior art of record.
8. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

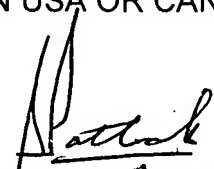
***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, it is recommended to the applicant to amend all the claims so as to be patentable over the cited prior art of record. A detailed list of pertinent references is included with this Office Action (See Attached "Notice of References Cited" (PTO-892)).
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm.  
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571)-272-3042.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sudhanshu C. Pathak  
Examiner  
Art Unit 2611